CHECKLIST

CHEMTECH

JANUARY 1991

20-Year Quiz — 9 — You'll do well on **Noether**'s high-tech exam if you've taken full advantage of a certain readable, far-ranging periodical. Guess which one.

Assumptions for innovation — 12 — Characteristics of many changes in human behavior were found through research by **The Rensselaerville Institute.**

B, E, & T: The scientists behind surface science — 18 — This biographical triptych of Brunauer, Emmett, and Teller reveals how three scientific virtuosi synergized each other's work. Emmett's student, **Davis,** wrote it.

Vanishing healers — 26 — There are lots of uses, beyond cleaning up the neighborhood, for disappearing plastics. **Holy** knows about them.

High-temperature fuel cells: Part 1 — 32 — Even when they're hot, fuel cells in cogeneration circuits don't suffer significant Carnot inefficiency. **Minh** describes how they work and the materials that make it all possible.

Listening to atoms vibrate — 38 — The principle of photoacoustic spectroscopy is simple: Shine light of the right wavelength on a sample and listen. How that gets us unique, useful insights into stuff is explained by **Urban.**

Regulating carcinogenic pesticides — 42 — Science or judgment call? **Lamb** says it's got to be both.

Microbes beware: Quinolones — 50 — Just as myriads of analogues of penicillin were made, now we're seeing a rush to a newer class of heterocyclic drugs. But now deeper biochemical understanding is guiding the work of **Mitscher** and co-workers.

The future of the chemical industries — 58 — The understanding of the structure of our businesses, provided by **Shinnar,** is essential to guiding those businesses into international markets.

1 **The Industrial Chymist** in which we wrestle with something no one would define until. . .

3 **Write On** in which we both render assistance and return a reader to the ranks of the living.

4 **P. S.** in which there's more on enzyme action in organic media.

5 **Heart Cut** in which **Ailin-Pyzik, Piccolini,** and **Young** have distilled uses for dioxiranes, O-rings, and ultrasonics.

15 **Energy Watch** in which the volatile Soviet oil industry could shock world markets, for better or worse—and maybe for both.

IBC **The Last Word** in which **Schwartz** takes the mystery out of stuff—and the profit, too.

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CHEMTECH

The Innovator's Magazine **JANUARY 1991**

CHEMTECH

MARCH 1991

The 12 Commandments 138 ☐ If you want to be heard, then follow **Phillips** and **Moore's** canons.

Comfortable clothes through chemistry 142 ☐ Combining principles of body chemistry and materials chemistry led to creation of hi-tech clothing for extreme climates. **Bucheck** details how it was done.

Specialty chemicals 148 ☐ Here's a look at chemicals that do things: what they are and do, where they come from—and where they're going. **Kline** should know.

Consider co-op 152 ☐ Alternating time spent on the campus with that spent on a job is good for employee and employer. **Ichniowski** demonstrates.

Chiral drugs: The coming revolution 157 ☐ Isn't it astounding, given the common understanding of life chemistry, that only now do we take account of the importance of stereochemistry in designing medicines? **Deutsch** explains why now and what's to come.

Enzymes: Use them 160 ☐ There's a kit of tools out there for the serious-minded molecular architect. **Margolin** teaches how to use 'em.

Mainly-organic magnets 168 ☐ Yes, Virginia, it is possible to make tapes and other neat magnetic things that are mostly organic. **Miller** and **Epstein** prove it.

The world of fine particles 176 ☐ When the pieces get small enough, surface chemistries get far more important to uses and misuses than the bulk chemistries on which we always seem to focus. **Matijević** relates the results.

Scanning tunneling microscopy 182 ☐ Eat your heart out, Heisenberg. We can, too, see individual atoms and even manipulate them. **Tang** shows how.

129 ☐ **The Industrial Chymist** in which **Luberoff** licenses living.

131 ☐ **Heart Cut** in which **Bisio, Schoch,** and **Torchia** describe a wild bet, loud chemistry, and a supercritical way to destroy wastes.

134 ☐ **The Best of CHEMTECH** in which our Board wrestles with selecting the most important paper published in 1990.

137 ☐ **Guest Editorial** in which **Shinnar** talks about chemicals in the real world.

140 ☐ **View from the Top** in which **The Conference Board** sets us straight on key people problems.

175 ☐ **Energy Watch** in which **Al-Fathi** pleads for understanding.

IBC ☐ **The Last Word** in which there's a great way to baffle your friends.

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CHEMTEC

The Innovator's Magazine **MARCH 1991**

CHECKLIST

CHEMTECH

OCTOBER 1991

Greenhouse economics: Count before you leap — 584 ☐ Man lives comfortably in more different climates than does any other species. So the planet may warm. "So?", asks **The Economist.**

A fish story — 588 ☐ Whatever became of textured protein foods? The Japanese have known for 800 years. What they've known is related by **Okada**'s story of the surimi industry.

The significance of phlogiston — 592 ☐ Here, from the wonderful science book **Conant** prepared for liberal arts students, is his timely analysis of the persistence of lousy ideas.

Free market eco-management — 598 ☐ To protect the planet, privatize it, says **Smith**.

Recycling plastics today — 606 ☐ In this encyclopedic study **Kline** surveys both Europe and the United States.

Showroom shine! — 616 ☐ Would you believe your car's got seven coats of paint? It has; **Bauer** explains why and how.

Predicting mutagenicity — 624 ☐ Why not use a technique that's been successful in predicting therapeutic efficacy to predict toxicity? Or even, maybe, therapeutic index? For openers, see how **Shusterman**'s been using the Hansch QSAR approach.

Niobium, catalyst repair kit — 628 ☐ The benefits this exotic metal's compounds exert on a diversity of reactions is explored by **Tanabe.**

Reacting alkanes selectively — 634 ☐ It can be done and at high conversion. But because photons are so costly, a buck-and-a-half-a-pound seems like the break-even point for the technique described by **Crabtree, Brown, Muedas, Boojamra**, and **Ferguson**. But that's a beginning.

577 ☐ **The Industrial Chymist** in which **Luberoff** tells a touching tale.

578 ☐ **Heart Cut** in which **Ailin–Pyzik, Chalk**, and **Soni** describe gum for gum diseases, FTIR for adhesives, and bacterium-grown lipids for stabilizing dispersions.

582 ☐ **View from the Top** in which **Colicelli** says "Look out for my student!"

597 ☐ **Energy Watch** in which **Wicker** relates Kuwait's real story.

615 ☐ **Books** in which CHEMTECH Boardmember **Nicholls** probes manuals on lab waste management.

620 ☐ **Out in the Plant** in which **Yeigh** reveals the joys of the well-done material balance.

IBC ☐ **The Last Word** in which **Carlson** does marketing *à la* Gilbert and Sullivan.

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